OFFICIAL PUBLICATIONS
OF CORNELL UNIVERSITY

VOLUME V NUMBER 8

ANNOUNCEMENT OF THE NEW YORK STATE VETERINARY COLLEGE 1914-15

APRIL 1, 1914
PUBLISHED BY CORNELL UNIVERSITY
ITHACA, NEW YORK

OFFICIAL PUBLICATIONS
OF CORNELL UNIVERSITY

VOLUME V NUMBER 8

ANNOUNCEMENT OF THE NEW YORK STATE VETERINARY COLLEGE 1914-15

APRIL 1, 1914
PUBLISHED BY CORNELL UNIVERSITY
ITHACA, NEW YORK

This announcement is intended to give detailed information to prospective students in the New York State Veterinary College at Cornell University.

For general information concerning the University and its various colleges, the requirements for admission, etc., the General Circular of Information should be consulted. This and the other Official Publications of Cornell University are listed on the last page of the cover of this pamphlet. Any one of the informational publications there mentioned will be sent gratis and post-free on application to The Secretary of Cornell University, Ithaca, New York.

CALENDAR

First Term 1914–15

Sept. 11,	Friday,	Entrance examinations begin.
Sept. 21,	Monday,	Academic year begins. Registration of new students, Scholarship examinations begin.
Sept. 22,	Tuesday,	Registration of new students.
Sept. 23,	Wednesday,	Registration of old students.
Sept. 24,	Thursday,	Instruction begins. President's annual address to the students.
Sept. 26,	Saturday,	Registration, Graduate School.
Oct. 13,	Tuesday,	Last day for payment of tuition.
Nov.		Thanksgiving recess.
Dec. 22,	Tuesday,	Instruction ends } Christmas Recess.
Jan. 5,	Tuesday,	Instruction resumed }
Jan. 11,	Monday,	Founder's Day.
Jan. 23,	Saturday,	Instruction ends.
Jan. 25,	Monday,	Term examinations begin.

Second Term 1914–15

Feb. 6,	Saturday,	Registration, undergraduates.
Feb. 8,	Monday,	Registration, Graduate School.
Feb. 8,	Monday,	Instruction begins.
Feb. 26,	Friday,	Last day for payment of tuition.
Mar. 31,	Wednesday,	Instruction ends } Spring Recess.
April 8,	Thursday,	Instruction resumed }
May 22,	Saturday,	Navy Day.
June 2,	Wednesday,	Term examinations begin.
June 16,	Wednesday,	Commencement.

INDEX

NEW YORK STATE VETERINARY COLLEGE

FACULTY

Jacob Gould Schurman, A.M., D.Sc., LL.D., President of the University.
Veranus Alva Moore, B.S., M.D., V.M.D., Professor of Comparative Pathology, Bacteriology, and Meat Inspection. Director of the College.
James Law, F.R.C.V.S., Professor of Principles and Practice of Veterinary Medicine. Emeritus.
Simon Henry Gage, B.S., Professor of Histology. Emeritus.
Walter Long Williams, Professor of Principles and Practice of Veterinary Surgery, Obstetrics, Zootechny, and Jurisprudence.
Pierre Augustine Fish, D.Sc., D.V.M., Professor of Veterinary Physiology, and Secretary of the Faculty.
Grant Sherman Hopkins, D.Sc., D.V.M., Professor of Veterinary Anatomy and Anatomical Methods.
Dennie Hammond Udall, B.S.A., D.V.M., Professor of Veterinary Medicine and Hygiene.
Samuel Howard Burnett, M.S., D.V.M., Professor of Comparative Pathology and Bacteriology.
Howard Jay Milks, D.V.M., Professor of Therapeutics and Small Animal Clinic.
James Nathan Frost, D.V.M., Assistant Professor of Veterinary Surgery.
Earl Sunderville, D.V.M., Assistant Professor of Veterinary Anatomy.
Clifford Penny Fitch, A.M., D.V.M., Assistant Professor of Pathology and Bacteriology.
Charles Ernest Hayden, A.B., Instructor in Veterinary Physiology.
Frederick Koenig, D.V.M., Instructor in Veterinary Medicine.
Raymond Russell Birch, B.S., D.V.M., Instructor in Experimental Pathology.
Earl Max Pickens, D.V.M., Instructor in Diagnosis.
William Edward Muldoon, D.V.M., Instructor in Materia Medica.
Rudolph Ray Bolton, A.B., D.V.M., Instructor in Surgery.
Charles Albert Griffin, D.V.M., Assistant in Anatomy.
Jerry Raymond Beach, D.V.M., Assistant in Diagnosis.
Nathaniel Edward Koenig, D.V.M., Assistant in Medicine.
Samuel A. Goldberg, Student Assistant in Diagnosis.
Henry Asmus, Horseshoer.
Helena Harriet Haight, A.B., Clerk of the College.
Frances B. van Zandt, Librarian of the Roswell P. Flower Library.

Henry Hiram Wing, M.S. in Agr., Professor of Animal Husbandry.
Louis Munroe Dennis, Ph.B., B.S., Professor of Inorganic Chemistry.
Benjamin Freeman Kingsbury, Ph.D., M.D., Professor of Histology and Embryology.
Arthur Wesley Browne, M.S., Ph.D., Professor of Inorganic and Analytical Chemistry.
Elmer Seth Savage, M.S.A., Ph.D., Professor of Animal Husbandry.
Thomas Whitney Benson Welsh, A.B., Ph.D., Instructor in Inorganic Chemistry.

Samuel Arthur Mahood, B.Sc., M. A., Instructor in Organic Chemistry.
Oliver Ralph Overman, A.B., Assistant in Chemistry.
Hugh McMillan Kingery, A.M., Instructor in Histology and Embryology.
Clarence Lee Shilliday, Ph.M., Assistant in Histology and Embryology.
Alvin Broerman, D.V.M., Assistant in Histology and Embryology.

NONRESIDENT LECTURERS FOR 1913–14

W. B. Switzer ..... Oswego
Theobald Smith ..... Boston, Mass.
J. C. Buckley ..... Detroit, Mich.
G. L. Flanders ..... Albany
J. W. Adams ..... Philadelphia, Pa.
W. G. Hollingworth ..... Utica
G. T. Stone ..... Norwich
H. S. Beebe ..... Albion

VETERINARY COLLEGE DIRECTORY

The President of the University, Jacob Gould Schurman, 2 Morrill Hall.
The Director of the Veterinary College, Professor V. A. Moore, 1st floor.
Professor D. H. Udall, Medical Building.
Professor Walter L. Williams, Room 2, s. e. corner, 1st floor.
Professor Pierre A. Fish, Room 4, n. e. corner, 1st floor.
Professor Grant S. Hopkins, Room 12, n. e. corner, 2d floor.
Professor Veranus A. Moore, Room 13, s. w. corner, 3d floor.
Professor S. H. Burnett, Room 17, n. w. corner, 3d floor.
Professor H. J. Milks, Small Animal Building.
Assistant Professor J. N. Frost, Room 1, s. w. corner, 1st floor.
Assistant Professor E. Sunderville, Room 3, n. w. corner, 1st floor.
Assistant Professor C. P. Fitch, Room 17, n. w. corner, 3d floor.
Horseshoer, Henry Asmus, Farriery Building.
Clerk of the College, H. H. Haight, 1st floor.
Librarian, Frances van Zandt, Room 9, s. e. corner, 2d floor.
Groom, Joseph Fisher, Cottage east of Main Building.
Groom, Frank Spencer, Medical Building.
Assistant Groom, Jesse Everhart.

FOUNDATION

The New York State Veterinary College was established by act of the State Legislature in 1894: "There is hereby established a State Veterinary College at Cornell University," Laws of New York, 1894, p. 207. By action of the Board of Trustees of Cornell University, June 10, 1894, the location of the College upon the University Campus was authorized. It was further enacted that while the University does not undertake any financial responsibility for the buildings, equipment, or maintenance of the College, it does consent to furnish instruction upon such subjects as are or shall be in its curriculum, upon such terms as may be deemed equitable.

By further acts of the Legislature provision was made for the buildings, equipment, and maintenance of the College and finally in 1897, by "An act to provide for the administration of the State Veterinary College, established by chapter 153 of the laws of 1894", the Trustees of Cornell University were entrusted with its administration.

OBJECTS OF THE INSTITUTION

As stated in the act to provide for the administration of the State Veterinary College: "The State Veterinary College, established by chapter 153 of the laws of 1894, shall be known as the New York State Veterinary College. The object of the said Veterinary College shall be: to control investigations as to the nature, prevention, and cure of all diseases of animals, including such as are communicable to man and such as cause epizootics among live stock; to investigate the economical questions which will contribute to the more profitable breeding, rearing, and utilization of animals; to produce reliable standard preparations of toxins, antitoxins, and other productions to be used in the diagnosis, prevention, and cure of diseases, and in the conducting of sanitary work by approved modern methods; and to give instruction in the normal structure and function of the animal body, in the pathology, prevention, and treatment of animal diseases, and in all matters pertaining to sanitary science as applied to live stock and correlatively to the human family."

The New York State Veterinary College was therefore founded to raise the standard of veterinary investigation and instruction to the level of the most recent advances in biology and medicine. According to the thirteenth census of the United States (1910), the number of farm animals in the State, exclusive of poultry and pet animals, was 6,572,000 with a value of $238,282,000. This gives some idea of the great financial interest at stake in the matter of live stock. For the United States, the value in live stock is approximately $5,138,486,000. This calls for all that learning and skill can do to foster this great industry. The year book of the United States Department of Agriculture for 1912 gives a census of the domestic animals on farms with their value as follows: horses, 20,567,000, value, $2,278,222,000; mules, 4,386,000, value, $545,245,000; milch cows, 20,497,000, value, $922,783,000; other cattle, 36,030,000, value $949,645,000; sheep, 51,482,000, value, $222,779,000; swine, 61,187,000, value, $603,109,000.

Another consideration is that the normal, permanent fertilization of the soil is dependent upon the live stock kept, and that where there is a deficiency of animals, the productiveness of the land is steadily exhausted; therefore, the health and improvement of animals and the fostering of animal industry lie at the very foundation of our national wealth. Another and no less potent argument for the higher standard of veterinary education is its influence on the health of the human race. With a long list of communicable diseases which are common to man and beast, and with the most fatal of all human maladies, tuberculosis, also the most prevalent affection in our farm herds in many districts, it is to the last degree important that measures for the extinction of such contagion in our live stock should receive the best attention of the most highly trained experts.

To justify the liberality of the State in creating this seat of learning, it will be the aim of the College thoroughly to train a class of veterinarians for dealing with all diseases and defects that depreciate the value of our live stock, and with the causes that give rise to them. It will further aim, as far as it has the means and opportunity, to establish a center of investigation looking toward discoveries in the nature of diseases, in therapeutics, and in the immunization of animals from contagion; and toward the production of organic compounds to be employed in diagnosis, treatment, and immunization. So much has been recently discovered in these directions and present knowledge points so unmistakably to coming discoveries, that to neglect this field at the present time would be very unfortunate. Apart from discovery, the mere production of reliable articles of these organic products now coming into increasing demand by the State and by the private practitioner, for prevention, diagnosis, and treatment, is an object not to be lightly regarded More than this, it is the purpose of the College to be of as much assistance as possible to the practitioner of veterinary medicine.

The combination in one institution of educational facilities with scientific investigation, and the production of vaccines and serums to be employed in modern medical methods, are features that insure the best work in all departments, and the most exceptional advantages for the diligent student.

LOCATION

The New York State Veterinary College is located at Ithaca, on the Campus of Cornell University, fronting on East Avenue, and facing the University buildings. Electric cars on East Avenue convey students and visitors to any part of the city. Ithaca with its population of 15,800 is situated at the head of Cayuga Lake, two hundred sixty-three miles distant from New York City, on the lines of the Delaware, Lackawanna, and Western and the Lehigh Valley railroads. The University grounds are four hundred feet higher than the city and command a view of twenty miles of valley and lake.

BUILDINGS

The Main Building, one hundred and forty-two by forty-two feet and three stories high, overlooks East Avenue and an intervening park of two hundred and twenty by three hundred feet. The walls are of buff pressed brick, on a base of

Gouverneur marble; window and door facings are of Indiana lim
cotta ornamentations. On the first floor are the museum and
Director, of the professors of physiology, and of surgery and
the business office. The second floor contains a lecture room
physiology and urine analysis, reading
On the third floor are the offices and
ology.

Connected with the main building,
of ninety by forty feet and two stor
laboratories, and the lecture room of
floors are of impermeable cement.

The second extension from the mai
where power is generated for heating a

The Surgical Ward, thirty-one by one hundred feet, is furnished with box and other stalls, heating apparatus, baths, and all necessary appliances. The floor is of impermeable cement, and the ceilings of painted sheet steel. There is also a fodder room of twenty by thirty feet.

The Operating Theater for the surgical clinic is located at the south end of the patient's ward and is connected therewith. The building is well lighted and is provided with modern plumbing. There is a recovery room, in which the patients may recover from the effects of anæsthetics, connected with the operating table by an inclined plane, down which the patients may be conveyed. The clinic is well supplied with instruments and modern conveniences.

The Isolation Ward, fifteen by fifty-four feet, has its stalls absolutely separated from one another and each opening from its own outer door. It has the usual impermeable floor, with walls of vitrified brick and painted steel ceilings.

The Mortuary Building has an impermeable floor, walls of enameled brick, and painted steel plate ceilings, and is fitted with every convenience for conducting post mortem examinations and preparing pathological specimens.

The Post Mortem Building is in the rear of the main building and is furnished with room for instruments, and with water, heater, etc. The lighting and equipment, and the facilities for demonstrations have received especial attention.

A cottage for the groom, complete the list of State buildings erected for the Veterinary College. The equipment has been made very complete for both educational uses and research.

For a more detailed account of the equipment and of the facilities for instruction see Departments, Methods, and Facilities (pages 13–24).

ADMISSION

Admission on Certificate. For admission, the candidate must possess at least the preliminary education required by the laws of New York (Laws of 1895, Ch. 860) and must present a certificate of good moral character. As evidence that the requirements have been fulfilled, the State Education Department issues Veterinary Student Certificates, and one of these must be obtained by the candidate and filed with the Registrar of the University.

The requirements for a Veterinary Student Certificate are a Regents' academic diploma on the seventy-two count basis or a certificate of the satisfactory completion of four years academic work in a registered institution.

Although a student may enter on seventy-two counts, it is recommended that the following subjects be included: algebra, physics, physiology, chemistry, Latin, French or German, botany, zoology.

The Education Department will accept as full equivalent of the required academic course any one of the following.

1. A baccalaureate degree from the academic department of any college or university of recognized standing.

2. A certificate of having successfully completed at least one full year's course of study in the collegiate department of any college or university, registered by the Education Department as maintaining a satisfactory standard.

3. A certificate of having passed in a registered institution examinations equivalent to the full collegiate course of the freshman year or to a completed academic course.

4. Regents pass cards for any seventy-two academic counts or any Regents' diploma.

5. Certificate of graduation from any registered gymnasium in Germany, Austria, or Russia.

6. A certificate of the successful completion in Italy of a course of five years in a registered ginnasio and three years in a liceo.

7. The Bachelor's degree in arts or science, or substantial equivalents from any registered institution in France or Spain.

8. Any credential from a registered institution or from the government in any state or country which represents the completion of a course of study equivalent to graduation from a registered New York State high school or academy or from a registered Prussian gymnasium.

For full information concerning the education necessary to obtain the Veterinary Student Certificate, or for the acceptance of work done in the academies or high schools of this or of other states not under the Education Department, address: Examination Division, Education Department, Albany, N. Y.

Admission on Examination. For the present, students with a Veterinary Student Certificate will be admitted without further examination. For those not possessing such a certificate, admission will be granted to students who pass Cornell University or College Board entrance examinations covering 15 units as follows:

English three units, history one unit, elementary algebra one unit, plane geometry one unit, elective nine units. Instead of one unit in history the applicant may offer one unit in either botany, biology, or zoology.

For definite information concerning the requirements in each subject consult the General Circular of Information for 1914–15.

Special Students. The Veterinary College admits as special students persons who are graduates of recognized veterinary colleges and who are not candidates for a degree. The tuition for such students is the same as for undergraduates.

Admission to Advanced Standing. Applicants for admission to advanced standing as members of the second or third year class, must present the necessary educational qualifications for admission to the first year class, and must pass satisfactory examinations in all the work for which they desire advanced credit, or offer satisfactory certificates of the completion of this work in other schools whose entrance requirements and courses of study are equivalent to those of this college. No person will be admitted to any advanced class except at the beginning of the college year in September.

Graduates of veterinary colleges whose requirements for graduation are not equal to those of the New York State Veterinary College may be admitted provisionally upon such terms as the Faculty may deem equitable in each case, regard being had to the applicant's previous course of study and attainments. In this connection, attention is called to the legal requirements of academic and professional education for the practice of veterinary medicine in the State of New York. (See pages 8–9 and Appendix B.)

Admission to Graduate and Special Work. The ample facilities for graduate and special work in the New York State Veterinary College and in the allied departments in Cornell University, are open to graduates of this institution and of other colleges whose entrance requirements and undergraduate courses are equivalent. (See pages 8–9. For a course for practitioners see page 27.)

REGISTRATION

At the beginning of each term (see calendar for exact day and date) the student must register with the University Registrar. After registering with the University Registrar, he must register the same day with the Secretary of the Veterinary Faculty, Doctor Fish, Room 4, first floor of the Veterinary College.

No student, after having been once admitted to the University, will be allowed to register after the close of the registration day, except by special permission of the Faculty.

REQUIREMENTS FOR GRADUATION

In order to receive the degree of Doctor of Veterinary Medicine (D. V. M.) candidates must satisfy all the entrance requirements (pages 8 and 9), must successfully pursue the courses named in the following schedule of studies, and must have paid all fees.

SCHEDULE OF COURSES LEADING TO THE DEGREE OF DOCTOR OF VETERINARY MEDICINE (D. V. M.)

The work of the College is arranged to begin during the last of September and to close during the third week in June. This period is divided into two terms, see calendar page 2.

PRESCRIBED THREE-YEAR COURSE

First Year

	No. Course	Credit 1st Term	Credit 2nd Term	Total of Actual Hours
Inorganic Chemistry	1	6	—	135
Histology and Embryology	6	3	5	210
Anatomy	1	3	—	
"	2	1	—	
"	3	3	—	383
"	4	—	5	
Physiology	10	3	—	
"	12	—	3	165
"	14	—	2	
Feeding Animals	1	—	2	38
Animal Breeding	2	—	2	30
		19	19	961

Second Year	No. Course	Credit 1st Term	Credit 2nd Term	Total of Actual Hours
Anatomy	5	4	—	225
"	6	2	—	
Physiology	11	1	—	15
"	13	1	—	15
Pharmacology	20	2	—	30
Materia Medica and Pharmacy	21	2	—	75
General Pathology	40	4	—	105
Special Pathology	41	—	2	53
Parasites	44	2	—	53
Small Animal Clinic	25	—	1	45
Consulting Clinic	53	—	1	45
Bacteriology	43	—	5	143
General Surgery	30	—	4	97
Physical Diagnosis	51	—	2	30
Horseshoeing	52	—	1	15
Ophthalmology	55	—	1	15
Hygiene	56	1	—	15
Horseshoeing Exercises	57	—	1	45
		19	18	1029
Third Year				
Urine Analysis	15	1	—	45
Diseases of Small Animals	22	—	2	30
Materia Medica and Therapeutics	23	2	—	30
Surgical Exercises	31	1	—	45
Special Surgery	32	4	—	60
Obstetrics	36	—	4	60
Infectious Diseases	42	—	2	30
Special Pathology	41	2	1	53
Small Animal Clinic	25	1	1	90
Consulting and Medical Clinic	53	1	1	90
Surgical Clinic	34	2	2	180
Ambulatory Clinic	37	1	1	90
Medicine	50	5	5	150
		20	18	953

OPTIONAL FOUR-YEAR COURSE

First Year				
Inorganic Chemistry	1	6	—	135
Histology and Embryology	6	3	5	250
Anatomy	1	3	—	383
"	2	1	—	
"	3	3	—	
"	4	—	5	

First Year	No. Course	Credit 1st Term	Credit 2nd Term	Total of Actual Hours
Physiology	10	3	—	
"	12	—	3	165
"	14	—	2	
Feeding Animals	1	—	2	38
Animal Breeding	2	—	2	30
		19	19	961
Second Year				
Anatomy	5	4	—	
"	6	2	—	225
Physiology	11	1	—	15
"	13	1	—	15
Pharmacology	20	2	—	30
Materia Medica Laboratory	21	2	—	75
General Pathology	40	4	—	105
Special Pathology	41	—	2	53
Parasites	44	2	—	53
Bacteriology	43	—	5	143
General Surgery	30	—	4	97
*Chemistry	6	—	5	143
		18	16	954
Third Year				
Urine Analysis	15	1	—	45
Diseases of Small Animals	22	—	2	30
Materia Medica and Therapeutics	23	2	—	30
Special Pathology	41	2	—	53
Small Animal Clinic	25	—	1	45
Consulting and Medical Clinic	53	—	1	45
Physical Diagnosis	51	—	2	30
Horseshoeing	52	—	1	15
Ophthalmology	55	—	1	15
Hygiene	56	1	—	15
Clinical Examination of Blood	62	—	2	53
*Organic Chemistry	32	4	—	90
*The Horse	5	—	4	90
*Milk Composition and Tests	1	2	—	53
Horseshoeing Exercises	57	—	1	45
Optional		7	4	165
		19	19	819

*Optional

Fourth Year	No. Course	Credit 1st Term	Credit 2nd Term	Total of Actual Hours
Special Surgery	32	4	—	60
Obstetrics	36	—	4	60
Surgical Exercises	31	1	—	45
Pathology of Infectious Diseases	42	—	2	30
Small Animal Clinic	25	1	1	90
Consulting and Medical Clinic	53	1	1	90
Surgical Clinic	34	2	2	180
Ambulatory Clinic	37	1	1	90
Medicine	50	5	5	150
*Toxicology	80	2	—	30
*Market Milk and Milk Inspection	6	—	2	53
Post Mortem Examinations	47	2	2	150
		19	20	1028

Further optional work may be chosen from the following courses: No. 46 Laboratory Diagnosis; No. 14, Elementary Biochemistry; No. 10, Dairy Cattle; No. 11, Beef Cattle, Sheep, and Swine; No. 15, Advanced Courses in Principles of Feeding; No. 17, Advanced Stock Judging.

DEPARTMENTS, METHODS, AND FACILITIES

In addition to the departments of the Veterinary College proper, the resources of the entire University are at the disposal of the College by virtue of the action of the Board of Trustees at the time when authorization was given for its location on the Campus of Cornell University (p. 5 under foundation). Among the facilities of the University of especial value to the Veterinary College may be mentioned the museums of vertebrate and invertebrate zoology including entomology, of agriculture, of botany, and of geology. The University Library, with its 430,000 bound volumes, 62,000 pamphlets, and 2,000 current periodicals and transactions of societies is likewise as freely open to Veterinary College students as to other University students (see also Flower Library).

The departments with their special equipments, facilities, and methods, are given approximately in the order in which the subjects are pursued in the veterinary curriculum.

The courses required for graduation are given in the schedule of studies, pages 10–13, but the additional courses offered by the various departments are thought to be of especial value to veterinary students and may be selected by them whenever they have satisfied the requirements.

CHEMISTRY

The instruction in chemistry is given in Morse Hall.

The following are the courses pursued by veterinary students and must be taken in the order here indicated.

*Optional.

1. **Introductory Inorganic Chemistry.** Lectures, recitations, and laboratory. First term, credit six hours.

1a. Lectures, T Th S, 11, Professor DENNIS and Mr. DAVIS: M W F, 11, Professor BROWNE and Mr. DAVIS. Lecture Room 1.

1b. Recitations (one hour a week), and laboratory (two 2½ hour periods a week) to be arranged. Professors DENNIS and BROWNE, and Messrs. WELSH, OVERMAN, WEISER, GULICK, PARMELEE, MACK, BENNETT, and HOVEY.

32. **Elementary Organic Chemistry.** First term, credit four hours. Lectures, and oral and written reviews. M W F, 12. Mr. MAHOOD and Mr. KENNEDY. Lecture Room 3. Laboratory, T or Th, 2–5.

This optional course may be taken by students in veterinary medicine who have satisfactorily completed course 1 in chemistry.

MICROSCOPY, HISTOLOGY, EMBRYOLOGY

Professor: B. F. KINGSBURY.
Instructor: H. M. KINGERY.
Assistant: C. L. SHILLIDAY.

This department offers instruction in the theory and use of the microscope and its accessories; in vertebrate histology, in vertebrate embryology, and in histologic and embryologic technique; and opportunities for research in all of these subjects. For all the courses the department is well supplied with the best modern apparatus.

The rooms for the use of this department are on the first and second floors of Stimson Hall. They consist of a large general laboratory, a research laboratory, preparation room, and laboratories for the instructing staff, where also special demonstrations of difficult subjects are given to small groups of students.

In the course outlined below, the student gains a practical knowledge of the normal structure of the tissues and organs of the animal body by the direct study of them in the laboratory. From time to time, the ability of the student to recognize the normal structure is tested by the identification of unlabelled preparations. The laboratory work is supplemented by recitations, reviews, and lectures covering the general aspects of the subject.

6. **Microscopy, Histology, and Embryology.** Throughout the year, credit eight hours. The exercises each week are as follows: first term, laboratory work, T, 10–1, Th, 10–12; demonstration, lecture, or recitation, Th, 9; second term, M Th S, 8; laboratory, Th F, 2–5, Professor KINGSBURY, Instructor KINGERY, and assistants.

Microscopy. The aim is to give a working knowledge of the theory and use of the microscope and its accessories, methods of mounting microscopical specimens, etc.

Histology. This includes the study of the fine anatomy of the animal body, and also the fundamental methods of histologic investigation and demonstration.

Embryology. This deals with the elements and methods of embryology in the domestic animal, especially the chick, pig, sheep, and cow.

ANATOMY

Professor: G. S. HOPKINS.
Assistant Professor: EARL SUNDERVILLE.
Assistant: C. A. GRIFFIN.
Student Assistant: H. C. MCCARTNEY.

The instruction in anatomy is by lectures, recitations, and laboratory work, the last being by far the most important. The objects of the lectures are to present facts of general morphology as related to the horse and other domestic animals; to direct attention, as far as possible, to the correlation of structure and functions of the various organs of the body; and to emphasize the anatomical relations of those parts most subject to surgical operations. The main reliance, however, is placed upon the work done in the laboratory. Thorough practical knowledge of anatomy can be acquired in no other way, and every student, before taking his final examinations, will be required to dissect all parts of the horse or the ox, and such parts of other domestic animals as may prove most expedient.

The courses in anatomy extend over two years. The first year is devoted to the study of bones, joints, muscles, and certain of the viscera; the second year, to the vascular and nervous systems and to the organs of special sense.

In the study of osseous, muscular, digestive, and respiratory systems, the skeletons in the laboratory and the Auzoux models afford valuable assistance. In the museum there are accumulating series of specimens which illustrate, in a typical manner, some of the more important anatomical features of the various domestic animals.

The city and surrounding country supply abundant anatomical material of almost endless variety: horse, ox, sheep, and swine, dog, cat, rabbit, and guinea pig, both adult and in all stages of fetal development.

1. **Comparative Osteology.** Three hours. First term. Lectures, T, 9. From September to February there will be five periods of laboratory work, M T Th F, p. m., S, a. m. From February to June there will be three periods: M, a. m., T, p. m., S, a. m. Professor HOPKINS and Assistants.

2. **Arthrology.**—One hour. First term. This course immediately follows course 1. Professor HOPKINS and Assistants.

3. **Myology and Abdominal Viscera.** Three hours. First term. In this course the dissection of muscles is begun. Lectures, laboratory hours, etc., the same as in the preceding courses. Professor HOPKINS, Assistant Professor SUNDERVILLE, and Assistants.

4. **Myology, Thoracic and Abdominal Viscera, Lymphatic System and Organs of Special Senses.**—Five hours. Second term. Lectures and written reviews, T, 8. One or more weekly recitations. Laboratory work, M, a. m., T, p. m., S, a. m. Professor HOPKINS, Assistant Professor SUNDERVILLE, and Assistants.

5. **Blood Vessels and Nerves of the Arm and Leg.**—Three hours. First term. Laboratory work. M T Th F, p. m., S, a.m. Professor HOPKINS, Assistant Professor SUNDERVILLE, and Assistants.

6. **Blood Vessels and Nerves of the Head; the Central Nervous System and Genital Organs.**—Three hours. First term. Laboratory hours the same as in course 5. Professor HOPKINS, Assistant Professor SUNDERVILLE, and Assistants.

7. **Advanced Anatomy.**—Two or more hours. Laboratory periods in the first term, to be selected from the following: M T Th F, p. m., S, a. m.; and

in the second term the following: M T Th F, p. m., S, a. m. The work will be on the osseous, vascular, and nervous systems; the viscera and genito-urinary organs of carnivora; the viscera, genito-urinary organs, and the lymphatic system of ruminants. Certain regions of the horse, of special surgical importance, may also be reviewed. Professor HOPKINS and Assistant Professor SUNDERVILLE.

PHYSIOLOGY

Professor: P. A. FISH.
Instructor: C. E. HAYDEN.

It is the aim of this department to select from a wide field of important topics, those which will be of greatest use to the student in comprehending the vital processes of the animal body. Without a complete understanding of the normal functions, it is useless to attempt progress in the proper conception of diseased conditions.

The proper correlation of work in the laboratory, and in the recitation and lecture room, it is believed, will afford to the student a more comprehensive grasp and understanding of the perspective and symmetry of the subject than can otherwise be obtained.

The lectures are illustrated with lantern slides, charts, histological preparations, dissections, and practical demonstrations.

The laboratory is located on the second floor of the Veterinary College. It is well lighted and ventilated and equipped with new apparatus. The equipment includes kymographs, induction coils, sphygmographs, cardiographs, circulation schemes, tambours, centrifuges, microscopes, and other apparatus for complete and satisfactory work.

Every encouragement is offered to those properly fitted to pursue their work beyond that given in the regular curriculum.

10. **Physiology Recitations,** First term, credit three hours. M W F, 9; or M W F, 10. Professor FISH and Mr. HAYDEN.

11. **Physiology Recitations.** First term, second year, credit one hour. T, 12; or Th, 9. Professor FISH and Mr. HAYDEN.

12. **The Physiology of the Nutrition and Secretion of the Domesticated Animals.** Second term, credit three hours. T Th F, 10. Professor FISH.

13. **The Physiology of the Muscular and Nervous Systems.** First term, second year, credit one hour. T, 9. Professor FISH.

14. **Physiological Laboratory.** A portion of the course is devoted to chemical physiology. Artificial digestive juices are tested upon the various kinds of foodstuffs by the students and careful notes kept of the various changes. Milk, bile, and blood are also studied, with a spectroscopic examination of blood. A portion of the work is devoted to a study of the phenomena associated with the circulatory, respiratory, muscular, and nervous systems. Students are required to obtain and preserve graphic records of these phenomena, whenever possible. Certain experiments requiring special apparatus and special care are performed as demonstrations, by the instructors, with the assistance of the students when possible. Second term, five hours a week. T, 11–1 and W, 8–11; or Th, 11–1 and F, 8-9, 11–1. Professor FISH, Mr. HAYDEN, and Assistants.

15. **Urine Analysis.** Laboratory work devoted to the comparative study of urine. Examinations are made of human urine and that of the domesticated

animals especially the horse. In addition to the chemical examination some attention will be devoted to a microscopic study of urinary deposits. Fifth term, three hours a week. Th, 9–12; or S, 9–12. Professor FISH, Mr. HAYDEN, and Assistants.

16. **Advanced Physiology.** This course will be adapted to the needs of the student and will consist principally of laboratory work supplemented by such reading and reports as may be necessary. Five or more hours a week. Professor FISH and assistants.

MATERIA MEDICA AND SMALL ANIMAL CLINIC

Professor: H. J. MILKS.
Instructor: W. E. MULDOON.

The instruction in pharmacology consists of class room and laboratory work. In pharmacology the work includes not only the materials of medicine, but also their preparations, use, and physiological actions. Allowing for certain exceptional differences, there is in general a resemblance in the action of drugs in the lower animals and in human beings. The clinics furnish abundant material for the study of applied therapeutics and of the action of the different drugs.

20. **Pharmacology.** A study of the actions and uses of the various drugs and their preparation. A varied collection of the crude drugs and their official preparations is available. The course is conducted in the form of lectures with short weekly examinations. First term. W Th, 10. Professor MILKS.

21. **Materia Medica and Pharmacy Laboratory.** The work in this course consists of the study of a selected group of inorganic drugs and of certain crude organic drugs and their official preparations, and in making pharmaceutical preparations such as syrups, emulsions, spirits, liniments, tinctures, fluid extracts, extracts, ointments, pills, etc. In his study the student is required to write concise notes of the physiologic action of the drugs examined and to make tests of their incompatibility. In addition to this, each student will have practical experience in writing and compounding prescriptions. The importance of a discriminating and accurate system for dispensing medicines is thoroughly emphasized. First term, five hours a week. Th, 11–1, and F, 10–1; or M, 10–1, and T, 10–12. Professor MILKS and Dr. MULDOON.

22. **Diseases of the Small Animals.** This course deals principally with canine and feline diseases. Two lectures or recitations throughout the second term of the senior year. M W, 9. Professor MILKS.

23. **Recitations in Materia Medica and Therapeutics.** First term. M, 9, F, 9. Professor MILKS.

24. **Advanced Work.** This course will consist principally of laboratory exercises on the physiologic action of drugs on animals and will be supplemented by collateral reading and reports. Five or more hours a week. Professor MILKS and Dr. MULDOON

CLINIC FOR SMALL ANIMALS. In this clinic, dogs and cats form the majority of patients. The students have close supervision of the cases; they compound and administer medicines and assist in the surgical operations.

25. **Small Animal Clinic.** Six actual hours a week. Daily, 2–3 p. m. Professor MILKS and Dr. MULDOON.

This course is required of junior students in their second term. The seniors take it throughout the year. This clinic is given at the same time as the consulting clinic (course 53). Students alternate their work by transferring from one clinic to the other each month.

COLLEGE OF AGRICULTURE—ANIMAL HUSBANDRY

Courses

1. **Principles and Practice of Feeding Animals.** Second term, credit two hours. Lecture, F, 9. Practice, M T W Th, or F, 2–3.30, by appointment. Animal Husbandry Building. Professor SAVAGE and assistants.

The general principles of animal nutrition, including the study of feeding standards, the common grain and commercial feeds, the formulation of rations, etc.

2. **Principles of Animal Breeding.** Second term, credit two hours. Lectures, T Th, 9. Animal Husbandry Building. Professor WING and assistants.

A general outline of the principles of heredity as applied to the breeding of animals, with a study of animal form, origin and formation of breeds, crossing and grading, an outline of the methods of registration, and the study of records and pedigrees. Demonstrations, essays, and reports will be required as supplementary to the lectures.

SURGERY, OBSTETRICS, ZOOTECHNICS, AND JURISPRUDENCE

Professor: W. L. WILLIAMS, Principles and Practice of Veterinary Surgery, Obstetrics, Zootechny, and Jurisprudence.
Assistant Professor: J. N. FROST, Veterinary Surgery.
Assistant: ———.

The instruction consists of class-room and laboratory work designed to produce symmetrical training for practice.

Surgery

CLASSROOM WORK

Course 30 (see courses, page 20), General Veterinary Surgery, with Course 40, Department of Pathology and Bacteriology (General Pathology), and Course 31 of Surgery (Surgical Exercises), constitute a complementary group intended to impart a general knowledge of the principles of surgery, surgical pathology and therapeutics, and operative technique.

Course 32, a total of eighty-five lectures and recitations, is devoted to the surgery of the various regions of the body.

The College possesses an extensive collection of surgical instruments and apparatus of home and foreign make, illustrating the history of veterinary surgery as indicated by the means employed in the cure of diseases.

The College has acquired (since its foundation,) a very extensive pathologic collection illustrative of surgical diseases to which has been added from the surgical and obstetrical clinics a very large amount of material of great value for teaching purposes. Further important additions are made by veterinary practitioners.

The surgical and obstetrical collection is especially rich in specimens illustrating the diseases of the genital organs (sterility) in cows.

Surgery and Obstetrics

CLINICS AND LABORATORY WORK

The laboratory work in surgery and obstetrics consists of surgical and obstetric exercises and clinics.

The course in surgical exercises comprises seventeen periods of three hours each, in which the student is required to perform all the important operations on horses and cattle. The animal for a given exercise is placed under general anæsthesia, which is maintained until the close of the period, when the subject is destroyed. The maintenance of chloroform anæsthesia for three consecutive hours gives to the student valuable experience in the technic of general anæsthesia, for which there is a constantly increasing demand. Strict method is enforced in relation to asepsis and antisepsis, arrest of hemorrhage, suturing, and dressing, so that while acquiring skill and a knowledge of the appearance, resistance, and general characters of living tissues, the student also forms proper habits in surgical procedure.

Obstetric exercises are given by appointment throughout the year. For this work a specially constructed apparatus, or "phantom", is employed in such a manner as to closely simulate actual working conditions in obstetrical practice. Newly born calves are procured, killed, and so placed in the apparatus that the various corrections of position and embryotomic operations are carried out by the student under the direction of the instructor in charge.

Clinical Surgery and Obstetrics of the Larger Animals. M T F, 11–1, First Term; T W F, 11–1, Second Term. One year. Students in charge of cases are required to give necessary daily attention.

Ambulatory Clinic. An ambulatory or out-clinic has been established for the purpose of giving instruction to students under conditions identical with those encountered in private practice.

Proper conveyances and equipment have been provided and an opportunity offered for observing such diseased farm and dairy animals as cannot be entered in the clinics at the College. The student thereby not only has an opportunity to see cases not readily brought to the college clinic, but also assists in handling cases in the same manner and under the same environment as is required of the country practitioner.

As the vicinity of Ithaca is largely devoted to dairying, valuable clinical material relating to obstetrics and the diseases of dairy cows is available and extensively used.

The location of the College and its plan of organization give unusual opportunities for clinical instruction in the character of the cases, the variety of species of animals, and the availability of each case for purposes of instruction. The city of Ithaca contributes a number of horses afflicted with lameness and other diseases characteristic of city animals, while the tributary agricultural region furnishes a varied and instructive clinic of the diseases of young and breeding animals, of castration and spaying, and of the diseases of meat-producing, dairy, and work animals, with the accidents incident to country practice.

The surgical building has a thoroughly modern equipment in every respect. There is a spacious operating room fitted with operating table, stocks, and other conveniences, a commodious recovery room for chloroformed animals, and other

accessory rooms for instruments, drugs, and other necessaries. The entire structure is planned to secure the highest efficiency in aseptic and antiseptic surgery.

Senior students assist regularly in the more difficult surgical operations. Those of less complexity are, under proper supervision, performed by senior students who are thus fitted to carry out operations with that confidence and skill which only actual experience can give.

General and local anæsthetics are regularly used in painful operations, and the student is taught to eliminate as far as practicable the element of pain in surgery. Instruments and apparatus of the most approved pattern are kept directly at hand in the operating room, and the student becomes familiar with their good and bad points by actual use.

Special apparatus for investigation is supplied as needed. Advanced students are called upon to assist in the various investigations, and thus become not only more familiar with surgical manipulations, but also inspired to study methodically and effectively the many questions in surgical pathology and therapeutics. They also become better prepared to cope promptly and properly with the many atypical cases constantly occurring in general practice.

Obstetrics

Course 36 (see page 21), consisting of sixty-four lectures and recitations, is given during the second term, at which time obstetric clinics are most available.

The course is preceded by an extended study of anatomy, physiology, and embryology.

Zootechnics

The subject of zootechnics is taught chiefly in the College of Agriculture, and is concerned with the various breeds of domestic animals and with the method of breeding and handling them.

Supplementary to this instruction, a course of lectures is given dealing especially with the breeding, care, and management of animals, in relation to disease, heredity disease, and vices, and a general résumé of the subject of breeding and care as related to veterinary science.

Jurisprudence

A course of lectures is given during the second term of the third year, dealing with the general responsibilities of veterinarians to the public, to stock owners, and to professional colleagues. Methods of making and recording examinations for soundness are considered, and a special study is made of physical diagnosis and prognosis as related to this subject. Practice is given in the clinics.

COURSES

30. **General Surgery.** Second year. Second term, four recitations or laboratory periods a week. T Th, 9, Th or S, 11, or Th, 3. Assistant Professor FROST.

Prerequisite courses 1, 2, and 3 in anatomy, course 12 in physiology, course 6 in histology and embryology, and course 4 in general pathology.

31. **Surgical Exercises.** Three hours a week of laboratory work in surgical operations upon anæsthetized animals. Third year. First term. Th, 10–1, or W, 10–1. Professor WILLIAMS, Assistant Professor FROST and ———.

32. **Special Surgery.** Third year. First term, four lectures or recitations a week. M T F, 10. W, 9. Professor WILLIAMS.

34. **Surgical Clinics.** Six actual hours or more a week throughout the third year. M T F, 11–1, First term. T W F, second term. Professor WILLIAMS and Assistant Professor FROST and ———.

Prerequisites, courses 30 and 31.

35. **Jurisprudence.** One lecture a week during the month of February. Third year. Professor WILLIAMS.

36. **Obstetrics and Zootechnics.** Four lectures or recitations a week. Third year, second term. T W Th F, 10. Professor WILLIAMS.

Prerequisite, course 30.

37. **Ambulatory or Out-Clinic in Obstetrics, Surgery and Medicine.** Throughout the third year by appointment. Professors WILLIAMS and UDALL, Assistant Professor FROST, and Drs. F. F. KOENIG, N. E. KOENIG, and ———.

COMPARATIVE PATHOLOGY, BACTERIOLOGY, AND MEAT INSPECTION

Professors: V. A. MOORE, Comparative Pathology and Bacteriology: S. H. BURNETT, Comparative Pathology. Assistant Professor C. P. FITCH, Bacteriology.
Instructors: R. R. BIRCH, Experimental Pathology; EARL M. PICKENS, Laboratory Diagnosis.
Assistant: J. R. BEACH, Laboratory Diagnosis.
Student Assistant: S. A. GOLDBERG.

The instruction in pathology and bacteriology is given by means of lectures, recitations, and laboratory work. In general pathology, Ziegler's textbook is followed, supplemented by the results of more recent investigations as they are found in current literature and special monographs. The laboratory work comprises examination of microscopic preparations of morbid tissues and the study of gross specimens. Opportunity is offered for more extended work both in technique and in the study of pathological histology. For this highly important work the laboratory is especially well equipped.

The bacteriological laboratories are well equipped with the best modern apparatus. The students will, under proper supervision, be instructed in the technique necessary for a practical working knowledge of bacteriology. The more important species of pathogenic bacteria will be studied. The special methods which are necessary for diagnosing such diseases as tuberculosis, anthrax, glanders, and the infectious swine and poultry disorders will receive careful attention.

For those who wish to do advanced work in any of these subjects excellent facilities are afforded. As the College is constantly investigating outbreaks of infectious diseases among animals in the State, an abundance of working material is assured. This enables the student to come into touch with practical work in bacteriological diagnosis.

As is seen from the above, it is the aim of this department to drill the students, by means of actual work, in the technique necessary for them to apply successfully in their future professional duties the knowledge acquired in the study of pathol-

ogy and bacteriology. To this end the courses of instruction have been carefully arranged, and for this purpose the laboratories have been equipped.

40. **General Pathology.** First term. Prerequisites, normal histology and at least one year's work in anatomy and physiology. Two recitations and five hours laboratory work each week. Recitations M W, 9. Laboratory, Section I, T, 10–1, F, 8–10, Section II, Th, 11–1, F, 10–1. Professors MOORE and BURNETT.

41. **Special Pathology.** Second term, second year and first term, third year. Prerequisite course 40. One lecture and one laboratory period each week. Professor BURNETT.

42. **Pathology of Infectious Diseases.** Second term. Open to students who have taken courses 40 and 41, and have taken or are taking course 43. Two hours. Recitations T Th, 9. Professor MOORE.

43. **Bacteriology.** Second term. Five hours. Open to students who have taken or are taking course 6 in microscopy. Two lectures and 7½ hours laboratory work each week. Lectures M W, 9. Laboratory work, Section I, M, 3–5.30, W, 10–1, F, 8–10, Sec. II, T, 3–5.30, Th, 10–1, S, 8–10; Sec. III, M, 10–12.30, W, 2–4.30, F, 2–4.30. Sections I and II will be nearly filled with veterinary students. Others wishing to register in these sections must first apply to the department. Professor MOORE and Assistant Professor FITCH.

(The lectures may be taken as a two hour course.)

44. **Parasites.** First term, two hours. This course deals with the common parasites of domesticated animals with special reference to their classification, and identification and to the morbid changes caused by them. Recitation T, 8. Lab.Sec. I, M, 10–12.30; Sec. II, W, 2–4.30. Assistant Professor FITCH.

45. **Research in Bacteriology and Pathology.** Laboratory work Prerequisite courses 40 and 43. Professor MOORE, Professor BURNETT, and Assistant Professor FITCH.

46. **Laboratory Methods of Diagnosis.** Prerequisite courses 40 and 43. Instruction by appointment in the application of methods used in histology, pathology and bacteriology for the diagnosis of general and specific diseases.

47. **Post Mortem Examinations.** Throughout the senior year by appointment. Students taking the four year course will have additional work consisting of histological and bacteriological examinations of material obtained at the autopsies. To these students two hours credit each term will be given. Dr. BURNETT and Mr. GOLDBERG.

48. **Meat and Dairy Inspection.** One hour. Second term. Third year. Lecture F, 9. Professor MOORE.

VETERINARY MEDICINE

Professor: D. H. UDALL.
Instructor: F. F. KOENIG.
Assistant: N. E. KOENIG.

The course in veterinary medicine, principles, and practice, extends over the last two years of undergraduate study, the subjects of the second year being distinct from, and complementary to, those of the first. It includes the constitutional dietetic and toxic affections and the non-infectious maladies of the different systems of organs—digestive, respiratory, circulatory, urinary, cutaneous, and

visual—of the various genera of domestic animals. The wide scope of the course, covering as it does the varied manifestations of a given morbid condition in all domestic animals in turn, the complications in each, caused by constitution, environment, utilization, microbian infection, etc., and the application of prophylactic and therapeutic measures to all in turn, gives a breadth and soundness of view which should render the student a reliable and skilful veterinary pathologist, physician, and sanitarian.

The course on contagious diseases deals with the general subject of infection and contagion; the microbiology of diseases in which micro-organisms constitute the essential factor; the accessory and restrictive environment, such as condition of soil, water, air, climate, culture, season, weather, animal industries, trade, migration, war, consumption of animal food, etc.; the diagnosis of the different plagues; the various methods of suppression by the individual owner, the municipality, town, county, state, or nation; and the exclusion of pestilences from a country. The transmissibility of each contagious disease to different genera of animals, from animal to man, and from man to animal, together with the susceptibility of each genus to immunization and the best known means of securing this, receive due attention.

Enzootic diseases are carefully studied, and the various causative factors in location, environment, and in constitutional or racial susceptibility are fully dealt with, as subsidiary to prevention and treatment.

The medical clinic, course 53, covers the above subjects as far as clinical material can be secured for this purpose. Our proximity to the city and to a well stocked agricultural country tends to secure a greater variety of patients than can be had in a large city remote from country flocks and herds. Students take charge of individual cases in the hospital and keep a record of cases with treatment. Out patients are also made use of for this purpose. The course also includes instruction in diagnosis. Through the medium of laboratory guides, students are expected to acquire a methodical system of examination by repeated systematic observations on both normal and diseased animals. This work involves the use of various special diagnostic methods taught in other laboratories of the College, such as examination of the blood, urine, and feces, the application of sero-diagnostic methods, etc.

50. **Veterinary Medicine, Principles and Practice.** Five lectures or recitations a week during the third year. Credit, five hours. Professor UDALL.

51. **Physical Diagnosis.** Two recitations or lectures a week, second term. Credit, two hours. Dr. F. F. KOENIG.

52. **Horseshoeing.** One lecture or recitation a week, second year, second term. Credit, one hour. Dr. F. F. KOENIG.

53. **Consulting and Medical Clinic.** Three actual hours a week for three terms. Credit, one hour. Professor UDALL, and Drs. F. F. KOENIG and N. E. KOENIG.

55. **Ophthalmology.** One lecture or recitation a week, second year, second term. Dr. F. F. KOENIG.

56. **Hygiene.** One lecture or recitation a week, second year, first term. Dr. F. F. KOENIG.

57. **Horseshoeing Exercises.** Three actual hours a week, second year, second term. Credit, one hour. Mr. HENRY ASMUS.

37. **Ambulatory Clinic.** Professor UDALL, and Drs. F. F. KOENIG and N. E. KOENIG.

SPECIAL LECTURES

During the year, lectures on special topics in medicine will be given by eminent practitioners and teachers of veterinary medicine. These will form a part of the instruction in this department.

ADVANCED WORK AND RESEARCH

The opportunities for study and investigation offered to advanced students in the College and in the various departments of Cornell University are very great. The situation of the College gives it a great variety as well as abundance of material for research, and the facilities for prosecuting the work are ample. To graduate and advanced students, every opportunity and encouragement will be offered for carrying on independent investigations. For special courses in advanced work and research, see under the various departments, pages 13-24.

COURSES FOR GRADUATES

The following courses have been arranged for graduates of this or other veterinary colleges who wish to devote further time to the study of certain phases of their profession. The need of instruction in addition to that given regularly to undergraduates, is evident from the constantly increasing demand for men in special fields, such, for example, as teaching, research, or sanitary work and some one of the various departments of veterinary practice or public service.

In addition to the special courses appended, graduates may take such parts as they desire of the work given to undergraduates. There are given in the College of Agriculture several courses in animal husbandry, and in dairy and milk inspection, which can be followed by those who wish to specialize in these lines.

60. **Advanced Bacteriology.** Laboratory work throughout the year. The course is designed for those who wish later to undertake original investigations in bacteriology. Prerequisite course 43, or its equivalent in some other university. Elementary chemistry and a reading knowledge of French and German are indispensable for successful work in this course. Professor MOORE and Professor BURNETT.

61. **Advanced Pathology.** Laboratory work throughout the year. This course is open to students who have taken course 40 and have taken or are taking course 43, or the equivalent in some other university. Professor MOORE and Professor BURNETT.

62. **Clinical Examination of the Blood.** Second term, credit two hours. One lecture and three hours laboratory work. Prerequisite course 40. Lecture, S, 9. Laboratory, F, 3-5.30. Professor BURNETT.

Department of Animal Husbandry

7. **Mechanics of the Horse.** First term, credit three hours. Prerequisite course 5. Lectures and recitations, W F, 11; laboratory, M, 3.30–5. Animal Husbandry Building. Professor HARPER.

17. **Advanced Stock Judging.** Credit, one hour. Prerequisite course 10. Animal Husbandry Building. S, 10.30–12.30. Professor WING, and Professors HARPER and SAVAGE.

15. **Advanced Course in the Principles of Feeding.** Second term, credit two hours. Prerequisite course 1. Will not be given unless elected by at least five students. Lectures and reports. Animal Husbandry Building. Professors WING and SAVAGE.

ROSWELL P. FLOWER LIBRARY AND OTHER LIBRARY FACILITIES

The Flower Library. By a gift of five thousand dollars to Cornell University for the purpose, the Honorable Roswell P. Flower, in 1897, laid a broad foundation for a thoroughly good working veterinary library. In order to insure the permanent usefulness of this library, Mrs. Flower, in 1901, gave ten thousand dollars for an endowment fund, the annual income from which is to be used for the purchase of books. The books and periodicals obtained with this fund have been considerably increased by donations from various persons, and by books obtained from the income of the College; the veterinary library, which contains about three thousand eight hundred volumes, is also largely supplemented by the University Library, and by loans of books and periodicals therefrom.

The periodical room at the College, which is open daily from 7 a. m. to 6 p. m., contains the leading veterinary and medical periodicals in English, French, and German. In it are also found Foster's Encyclopedia, Medical Dictionaries, and the Index Catalogue of the Medical Library of the Surgeon General's Office.

The Flower Library Room, which is open for free consultation at hours convenient to the students, contains most of the books and bound periodicals belonging to the library or loaned to it from the University Library. Books bearing especially upon the work of any laboratory course are kept upon the shelves of the laboratory where they are constantly accessible. Books may be drawn from the library for home use by veterinary students.

The books and bound periodicals and transactions in the University Library upon veterinary and human medicine, with allied sciences, exceed ten thousand volumes. Over two thousand periodicals and transactions are received, many of them pertaining directly to medicine and biology. Veterinary students have free access to the University Library and reading room, which are open daily from 8 a. m. to 10.45 p. m.

SEMINARIES

The different departments hold seminaries or special conferences for their advanced and graduate students. The purposes of these seminaries are: the discussion of methods of advanced and independent work, such as is expected of those who are preparing theses or prosecuting any special investigation; the presentation of the result of investigations and the progress of knowledge in the various departments; reports of students on the progress of their work. The students incidentally gain facility in public speaking and in preparation for taking a creditable part in the meeting of veterinary or medical societies.

SOCIETY OF COMPARATIVE MEDICINE

This is a student society organized for the purpose of giving mutual aid in gaining general and special medical knowledge, and facility in conducting the exercises of the meetings and in presenting papers and discussions in a clear and forcible manner before an audience.

NON-RESIDENT LECTURERS

Practitioners and others working in the interests of veterinary medicine will from time to time give lectures to the veterinary students. This feature will undoubtedly broaden the scope of instruction and will bring the student in closer touch with matters pertaining to practice, meat inspection, and sanitation.

TUITION AND OTHER FEES

Free Tuition. In the words of the law for the administration of the New York State Veterinary College, "no tuition fee shall be required of a student pursuing the regular veterinary course, who, for a year or more immediately preceding his admission to said veterinary college, shall have been a resident of this state."

For students, not residents of New York State, the annual tuition is $100 of which $55 is to be paid at the beginning of the first term, and $45 at the beginning of the second term.

Other fees. Every person taking laboratory work is required to pay for the material actually used. For the first year the laboratory fees will amount to $45; for the second year, $42; for the third year, $15. The average is thus a little over $35 a year. Most departments require an additional precautionary deposit in order to insure against breakage and excessive use of material. The above sums, therefore, represent the mnimum charges.

A matriculation fee of $5 is charged all students on entering the University.

Every student is charged an Infirmary fee of $3 a term, payable at the beginning of each term. In return for the Infirmary fee, any sick student is, on his physician's certificate, admitted to the Infirmary, or, at the discretion of the Infirmary committee, to the Ithaca City Hospital, if receivable under its rules, and is given without further charge a bed in a ward, board, and ordinary nursing, for a period not exceeding two weeks in any one academic year.

A fee of $10 is charged to cover the expenses of graduation, diploma, etc. This fee must be paid at least ten days before commencement. The amount will be refunded should the degree not be conferred.

Living expenses in Ithaca vary from $5 to $12 a week. Books, instruments, stationery, etc., cost $15 and upwards a year.

SCHOLARSHIPS, FELLOWSHIPS, AND PRIZES

University Undergraduate Scholarships. At a special examination held at the beginning of the fall term in each year, eighteen scholarships, continuing for two years and of an annual value of $200 each, are thown open to competition by all members of the incoming freshman class. For a full statement of the pro-

visions regulating the award and tenure of these University Undergraduate Scholarships, see the General Circular of Information.

University Fellowships for Graduates. One University Fellowship of the annual value of $500 is annually awarded in veterinary science or in agriculture.

The Horace K. White Prizes. These prizes established by Horace K. White, Esq., of Syracuse, are awarded annually to meritorious students in the graduating class of the College. They consist of a prize of $15 to the first in merit, and a prize of $10 to the second in merit.

The Hollingworth Honorarium for Research. An honorarium of $50 for advanced work or research in pathology and bacteriology, established by Dr. W. G. Hollingworth of Utica, is awarded to a senior on his general standing in the work of the first two years and his proficiency in the first courses in pathology and bacteriology. It requires that the student receiving it shall do satisfactory work in these subjects during his senior year.

The Jane Miller Prize of $50 in veterinary physiology is awarded to the student or students having the highest standing in this subject.

The Lora C. Schroeder Prize of $50 is awarded to the student or students doing the best work on the diseases of small animals.

The James Gordon Bennett Prize of $50 is offered for work done on local and generalized anæsthesia.

OPPORTUNITIES FOR SELF HELP

In addition to occasional and irregular work at hourly compensation in the various departments, the following positions as student assistant are open to capable veterinary students in their senior year:

Anatomy	$125 to $250 a year
Surgery	300 a year
Bacteriology and Pathology	125 to 250 a year

STUDY FOR PRACTITIONERS

The very rapid advance made during recent years in veterinary science and in facilities and methods for teaching it, as well as the advantage to be gained by studying a given subject under more than one teacher, make it highly desirable that busy practitioners should be enabled as far as possible to increase their personal knowledge by means of study at such times as they can leave their practice.

The New York State Veterinary College wishes to supply this want as far as practicable and offers every facility at hand to accomplish this end.

Veterinarians that are legally authorized to practice at their places of residence will be admitted to any class in the College at any time and for such period as they may elect, without entrance examinations. They will be wholly free to elect any studies that are being regularly taught at the time, and will be granted all opportunities and facilities offered to regular students as long as these opportunities do not interfere with the instruction of the regular students.

No tuition will be required from licensed veterinarians practicing in the State of New York.

Those taking laboratory courses will be required to pay fees to cover the cost of the material used.

Every practicable facility will be offered for special study along desired lines. A study of pages 13 to 25, Departments, Methods, and Facilities, will not only give information suggested by the heading, but will also enable any practitioner desiring to attend, to determine in advance precisely what work will be in progress at a given date.

This work is offered to veterinarians fundamentally and entirely for the benefits they may derive from increased knowledge in veterinary science and does not contemplate the granting of a degree, certificate, or other evidence of responsibility on the part of the College.

General inquiries in reference to this work should be addressed to the Director, while questions relating to studies in the various departments may be addressed to the heads of the departments concerned.

SIX-YEAR COURSE IN AGRICULTURE (B.S.) AND VETERINARY MEDICINE (D.V.M.)

Those who desire to obtain the degrees in agriculture and veterinary medicine may get them both in six years. In the fourth or senior year of agriculture, it is necessary to register also in the Veterinary College. In this connection the following resolution has been passed by the College of Agriculture:

"A regular student who has satisfactorily completed all the required work of his course and who has a credit of at least ninety hours, may with the permission of the faculties concerned, be registered both in the College of Agriculture and in the New York State Veterinary College and, on the completion of thirty hours of which not less than twelve hours shall be taught in the New York State College of Agriculture, may be recommended for his B.S. Degree."

At the end of the sixth year, after satisfactorily completing his work in the Veterinary College, he may be recommended for the degree of D.V.M.

APPENDIX A

Openings for Veterinarians in America

1. In the United States Cavalry and Artillery there is a demand for a limited number of veterinarians.

2. In the Bureau of Animal Industry, United States Department of Agriculture, a number of veterinarians are employed professionally as livestock agents and inspectors; inspectors and superintendents of quarantine stations; investigators in bacteriology and pathology, and meat inspectors. By an Act of Congress, the federal meat inspectors must be graduates of a veterinary college. Applicants for the position must take a civil service examination. The initial salary is $1,400.

3. In the different states there are appointive positions as State Veterinarian, and in some states as County or District Veterinarian. These are desirable positions and involve considerable responsibility.

4. The time is not far distant when each municipality must have its veterinary inspector of markets, abattoirs, and butcher meat, as well as of milk and other dairy products.

5. Veterinarians are needed to serve on tuberculosis and other commissions, so that work in this field may be conducted intelligently and successfully along scientific lines. The control of disease depends largely upon those specially trained in the anatomy, physiology, hygiene, and pathology of the lower animals.

6. Educators in comparative pathology are wanted in agricultural and veterinary colleges, and experiment stations, and must soon be in demand for every medical college that aims to keep abreast of the times.

7. There are always openings in the wide field of private veterinary practice. With a ratio of three farm animals to every human being, and with less than one veterinarian to every ten doctors of medicine for man, the balance of opportunity seems to be largely in favor of the veterinary practice, and this preponderance must steadily increase with the recovery of stock values and the increase in number of farm animals.

APPENDIX B

Legal requirements for license to practise veterinary medicine and surgery in the State of New York. Extracts from Article X, chapter 860, Laws of New York, 1895.

§ 171. **Qualifications for Practice.** No person shall practise veterinary medicine after July one, eighteen hundred and ninety-five, unless previously registered and legally authorized, unless licensed by the Education Department and registered as required by this article, nor shall any person practise veterinary medicine who has ever been convicted of felony by any court, or whose authority to practise is suspended or revoked by the Education Department on recommendation of a State Board.

§ 176. **Admission to Examination.** The Education Department shall admit to examination any candidate who pays a fee of ten dollars and submits satisfactory evidence, verified by oath if required, that he (first) is more than twenty-one years of age; (second) is of good moral character; (third) has the general education required in all cases after July first, eighteen hundred and ninety-seven, preliminary to receiving a degree in veterinary medicine; (fourth) has studied veterinary medicine not less than three full years, including three satisfactory courses, in three different academic years, in a veterinary medical school registered as maintaining at the time a satisfactory standard; (fifth) has received a degree as veterinarian from some registered veterinary medical school. The degree in veterinary medicine shall not be conferred in this state before the candidate has filed with the institution conferring it, the certificate of the Education Department that three years before the date of the degree, or before or during his first year of veterinary medical study in this State, he has either graduated from a registered college or satisfactorily completed an academic course in a registered academy or high school; or has a preliminary education considered and accepted by the Education Department as fully equivalent. [See pp. 8-9 for preliminary educational requirements.]

§ 178. **Examinations and Reports.** Examination for license shall be given in at least four convenient places in this State, and at least four times annually, in accordance with the Education Department's rules, and shall be exclusively in writing and in English. Each examination shall be conducted by an Education Department's examiner, who shall not be one of the medical veterinary examiners. At the close of each examination, the Education Department examiner in charge shall deliver the questions and answer papers to the board, or its duly authorized committee, and such board without unnecessary delay, shall examine and mark the answers and transmit to the Education Department an official report, signed by its president and secretary stating the standing of each candidate in each branch, his general average, and whether the board recommends that a license be granted. Such report shall include the questions and

answers and shall be filed in the public records of the university. If a candidate fails on the first examination, he may, after not less than six months' further study, have a second examination without fee. If the failure is from illness or other cause satisfactory to the Education Department, they may waive the required six months' study.

§ 179. **Licenses.** On receiving from the State board an official report that the applicant has successfully passed an examination and is recommended for license, the Education Department shall issue to him, if in their judgment he is duly qualified therefor, a license to practise veterinary medicine. Every license shall be issued by the university under seal and shall be signed by each acting veterinary medical examiner of the board and by the officer of the university, who approved the credentials which admitted the candidate for examination, and shall state that the licensee has given satisfactory evidence of fitness, as to age, character and preliminary and veterinary medical education and all other matters required by law, and that after full examination he has been found properly qualified to practise. Before any license is issued it shall be numbered and recorded in a book kept in the Education Department office and its number shall be noted in the license. This record shall be open to public inspection, and in all legal proceedings shall have the same weight as evidence that is given to a record of conveyance of land.

§ 180. **Registry.** Every license, to practise veterinary medicine, shall, before the licensee begins practice thereunder, be registered in a book to be known as the "veterinary medical register", which shall be provided by and kept in the clerk's office of the county where such practice is to be carried on, with name, residence, place and date of birth, and source, number and date of his license to practise. Before registering, each licensee shall file, to be kept in a bound volume in the county clerk's office an affidavit of the above facts, and also that he is the person named in such license, and had, before receiving the same, complied with all requisites as to attendance, terms and amount of study and examination as required by law and the rules of the university as preliminary to the conferment thereof, and no money was paid for such license except the regular fees, paid by all applicants, therefor; that no fraud, misrepresentation or mistake in any material regard was employed by any one or incurred in order, that such license should be conferred. Every license, or if lost, a copy thereof, legally certified so as to be admissable to evidence, or a duly attested transcript of the record of its conferment, shall before registering, be exhibited to the county clerk, who only in case it was issued or indorsed as a license under seal by the Regents, shall indorse or stamp on it the date and his name preceded by the words: "Registered as authority to practise veterinary medicine, in the clerk's office of —— county". The clerk shall thereupon give, to every veterinarian so registered a transcript of the entries in the register, with a certificate under seal that he has filed the prescribed affidavit. The licensee shall pay to the county clerk a total fee of one dollar for registration, affidavit and certificate.

CATALOGUE OF STUDENTS

1913-1914

FIRST YEAR

Altman, Irving Ed	Brooklyn
Ardell, Judson Warren	Atlanta
Arnold, John Fletcher	Rochester
Barringer, J. Lew	Norwich
Billings, William Arthur	Rochester
Bolenbraker, Roger Fraleigh	Red Hook
Brown, Lloyd Campbell	Gloucester, Mass.
Clark, Frederick Conrad	Cohocton
Dalrymple, David Bennett Hill	Otselic
Decker, Nelson	East Orange, N. J.
Dennington, Marion Edwin	Ithaca
Evans, Marion Lewis, jr.	Emerson, Iowa
Ferry, Clarence Barrett	Hornell
Fitzpatrick, Philip Wright	St. Paul, Minn.
Gluck, Jacob	Brooklyn
Godding, William Clarence	New York City
Gorton, Raymond Vaughn	Binghamton
Hannahs, Morgan Lattin	Canton
Hewett, George Henry	Delmar
Hodges, Harry Gurdon	Sidney Center
Hoyt, James Riccardo	Cohocton
Johnson, Bruce A.	Pennellville
Keib, Anson Raymond	Lowville
Long, William Michael	Tully
McCann, Arthur Hubbell	Salamanca
McManus, Thomas Francis	La Fayette
Moore, Ervin Veranus	Ithaca
Moore, Lloyd Edward	Pine Plains
Pogoriler, Joseph	Ithaca
Putney, Charles Milton	New York City
Quinn, Maurice Arthur	Norwich
Ransley, George Nethaway	Troy
Rutan, Russell Conklyn	Goshen
Sager, Floyd C.	Barton
Sauer, Howard Augustus	Rochester
Schaefer, John Joseph	Ithaca
Shindelman, Samuel H.	Brooklyn
Shook, Louis Lathrop	Red Hook
Stotchik, Julius	Coney Island
Thomson, William Maxwell	East Orange, N. J.
Van Valkenberg, Horatio Luther	Springville
Waller, Ray Benson Potter	Brooklyn
Wells, Carroll Allen	Franconia, N. H.
Whipple, Ray Orson	North East, Pa.
Whitney, Ralph Steward	Westport
Woodruff, Frank Holmes, jr.	Waverly

SECOND YEAR

Allen, James Henry	Salt Point
Becker, Volney M.	Ilion
Bonnikson, Harry Peter	Ferndale, Cal.
Boshart, Charles Ralph	Lowville
Brown, Albert Lyle	Carthage
Cornwell, Lloyd Rufus	Machias
Crosby, Joseph Fenton	Penn Yan
Crowe, Lester Pierce	La Fayette
Dassance, Leland Grant	Newfield
Davis, Roscoe Erle	Morris
Franke, Adolf Otto	Ithaca
Halsey, Raymond Augustus	Islip
Hoyt, David Morris	Clay
Jansen, John Floyd	Ithaca
Jones, Orrin Pritchard	South Montrose, Pa.
Krowl, John Charles	Elmira
Mastin, Howard James	Millbrook
Meade, Bernard Clarence	Watkins
Mook, Herbert Richard	Lancaster
Moore, John Dudley	Albion
Moore, John H.	Ithaca
Nowlan, Hanford Thatcher	Newark Valley
Peterson, Peter Theodore	Ferndale, Cal.
Regan, John Joseph	Wellsville
Regan, Stephen Paul	Wellsville
Schneidman, Samuel	New York City
Shigley, James Fremont	Hart, Mich.

Sierk, Leo Carmi	Attica
Skillman, George Sprague	Norwich
Smith, Reuben Elijah	Catskill
Spaulding, Roy Henry	Lyndonville
Sturrock, Alexander Pollock	Ithaca
Sutterby, Willaim Henry	Bath
Trowbridge, William Wesley	Adams Center
Vestal, Harold Clark	Noblesville, Ind.
Webster, Carl Sperry	Spencerport
Webster, Louis Carlton	Stanley
Williams, Walter Wilkinson	Ithaca

THIRD YEAR

Allen, David Boice	Greene
Andrews, John Dewit	Fair Haven
Baeszler, Alfred Thomas	Stapleton, S. I.
Baker, Harrison Vedder	East Aurora
Carnrite, James Schuyler	Amsterdam
Clark, Joseph Stanley	Cornwall Landing
Deal, Alfred Freer	Rhinebeck
Dean, Stanley Louis	Cortland
Dederick, Raymond Edgar	Catskill
Deming, David Francis	West Winfield
Eggleston, Harry William	Alden
Gardner, Clyde Armstrong	Ithaca
Gardner, Maurice Earl	Deposit
Goldberg, Samuel A.	New York City
Haner, Frank Henry	Hunter
Harris, James Augustine	Corfu
Hartman, Roy Charles	Verona
Hayden, Charles Ernest	Ithaca
Hill, Charles Francis	St. Johnsbury, Vt.
Howe, Ivan Goodwin	Scio
James, Floyd Thomas	Eagle
Johnson, Howard Eckler	Cherry Valley
Leonard, Milton Moot	Newfield
McCartney, Harry Charles	Ellenville
Mead, Lynn Howard	Syracuse
Moulthrop, Ralph Roy	Binghamton
Murray, Benjamin Frank	Bath
Price, Leo	Brooklyn
Savage, Alfred	Montreal, Canada
Schaefer, Fred Henry	Liverpool
Singleton, Garrie Archie	Ithaca
Skinner, Charles Bailey	New Berlin
Smith, Arthur Lewis	Catskill
Smith, Franklin DuBois	East Chatham
Steel, Edward R.	Kansas City, Mo.
Sumner, William Henry	Tyson, Vt.
Tillson, Hobart Warren	Morris
Vann, Herbert George	Brooklyn Hills, L. I.
Vara, Joseph J.	Silver Creek
Webber, Clarence Wentworth	Bergen
Wilson, Lloyd Ephraim	Fredonia
Winters, Raymond	Fayette
Wright, Lewis Horatio	West Glover, Vt.
Youmans, Ray Sedric	Wellsbridge
Zuber, Frank Pierce	Chili

FOURTH YEAR (OPTIONAL)

Clarke, Harold	St. Remy
Lyon, Vernon	East Masonville
Oberle, Alfred	Brooklyn

PRACTITIONER'S COURSE

Potter, Arthur F.	Leonardsburg, Ohio

GRADUATE STUDENTS NOT CANDIDATES FOR VETERINARY DEGREE

Beach, Jerry Raymond	Canisteo
Birch, Raymond Russel	Ithaca
Broerman, Alvin	New Bremen, Ohio
Koenig, Nathaniel Edward	Ithaca
Pickens, Earl Max	Ithaca

SUMMARY

First Year Students	46
Second Year Students	38
Third Year Students	45
Fourth Year Students (Optional Course)	3
Practitioner's Course	1
Graduates not candidates for Veterinary Degree	5
	138

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, N. Y., monthly from July to November inclusive, and semi-monthly from December to June inclusive.

[Entered as second class matter, August 31, 1910, at the post office at Ithaca, N. Y., under the Act of July 16, 1894.]

These publications include

Catalogue Number (containing lists of officers and students), price 25 cents,

Book of Views, price 25 cents,

Directory of Faculty and Students, Second Term, 1913–14, price 10 cents,

and the following informational publications, any one of which will be sent gratis and post-free on request. The date of the last edition of each publication is given after the title.

General Circular of Information for Prospective Students, February 1, 1914.

Announcement of the College of Arts and Sciences, January 15, 1911.

Announcement of the Sibley College of Mechanical Engineering and the Mechanic Arts, January 1, 1914.

Announcement of the College of Civil Engineering, February 15, 1914.

Announcement of the College of Law, May 15, 1911.

Announcement of the College of Architecture, March 15, 1912.

Announcement of the New York State College of Agriculture, June 15, 1913.

Announcement of the Winter Courses in the College of Agriculture, July 1, 1913.

Announcement of the Summer Term in Agriculture, April 15, 1914.

Announcement of the New York State Veterinary College, April 1, 1914.

Announcement of the Graduate School, January 15, 1914.

Announcement of the Summer Session, March 15, 1914.

Annual Report of the President, December 1, 1913.

Pamphlets on scholarships, fellowships, and prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Correspondence concerning the publications of the University should be addressed to

The Secretary of Cornell University,
Ithaca, N. Y.